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AUTHOR Davis, William J.
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ABSTRACT

This three year study compared three organizational plans for teaching remedial reading by spending one year each at different grade levels: primary, intermediate, and seven-eight, in that order. In the first plan a reading consultant tutored children individually in a reading clinic. In the second plan a master reading teacher provided aid in diagnosis, prescription, and individualization of instruction to classroom teachers who taught the remedial readers in their own classrooms. Intensive inservice education was conducted during the three years for the participating teachers; a reading materials center was established; and the reading clinic resources were made available to all teachers. A control group was selected the second year and did not receive program treatment. The results indicated that teacher competency increased in terms of five of six behavioral objectives. In the first year no statistical difference could be demonstrated in favor of children receiving special reading treatment at the clinic when compared to like children receiving regular classroom instruction. During the last two years of the experiment, students in the regular classrooms, whose teachers were involved in inservice sessions and who had the help of master teachers, demonstrated greater gains than the other two groups. *MHM)

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Experimental Program for the Improvement
of Teacher Competency in Reading.

"A comparison between remedial reading
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remedial reading instruction outside
of the regular classroom."

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William J. Davis -- Author
Director
Paderborn Learning Abilities Research Center
R. R. # 3, Waterloo, Ill. 62298

OS 002 369

INDEX

ACKNOWLEDGMENTS..... II

PART I. Narrative Report.

A - Program Goal.....	III
B - Program Operation.....	III
C - Goal Accomplishment.....	III
D - Unique Aspect of the Program and Problems Encountered.....	IV
E - A Brief Summary of Major Program Findings and a Recommendation for a Research Proposal.....	VI

PART II. Section I.

Teacher Objective One ('71-'72) ('72-'73) ('73-'74)...	1
Teacher Objective Two ('71-'72) ('72-'73).....	4
Teacher Objective Three ('71-'72) ('72-'73) ('73-'74)..	6
Teacher Objective Four ('71-'72) ('72-'73) ('73-'74)..	9
Teacher Objective Five ('71-'72) ('72-'73) ('73-'74)..	12
Teacher Objective Six ('73-'74).....	15
Student Objective One ('71-'72) ('72-'73) ('73-'74)...	16
Student Objective Two ('71-'72) ('72-'73) ('73-'74)...	31
Student Objective Three ('71-'72) ('72-'73).....	39
Student Objective Four ('72-'73) ('73-'74).....	41
Student Objective Five ('72-'73) ('73-'74).....	45
Student Objective Six ('73-'74).....	50

Section II.A. Objectives That Have Been Attained:

Teacher Objective One.....	52
Teacher Objective Three.....	54
Teacher Objective Four.....	56
Teacher Objective Five.....	58
Teacher Objective Six.....	59
Student Objective One.....	60
Student Objective Four.....	63
Student Objective Five.....	65
Student Objective Six.....	67
Program Objective.....	69

Section II.B. Objectives Not Accomplished:

Teacher Objective Two.....	71
Student Objective Two.....	73
Student Objective Three.....	74

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William J. Davis

PADERBORN LANGUAGE ARTS-READING CENTER

Experimental Program for the improvement of teacher competency in Reading.

A comparison between remedial reading classroom instruction and specialized remedial reading instruction outside of the regular classroom.

I. NARRATIVE REPORT.

A. Program Goal.

The basic goal of the program was to establish an inservice training program to increase teacher competency in reading.

B. Program Operation.

A language arts reading center was established. It served as a demonstration site and as an inservice training center. The demonstration site consisted of: First, a reading clinic that provided a remedial reading program for disabled readers; Second, a reading materials center that provided teacher access to approximately one hundred published materials including audio-visual material, basal reading series, standardized reading tests, reading journals, various professional books, and teacher made materials; and, Third, an inservice training center that provided for large group consultant sessions and small group viewing of videotaped demonstrations of various reading instructional techniques.

An intensive inservice training program was conducted for the three program years. The inservice training program consisted of a minimum of five days of summer workshops and nine Saturday workshops during the course of the school year. The workshops were conducted by university personnel who

had demonstrated competency in the field of reading. In conjunction with the workshops, each teacher was provided released time a minimum of three half-days during the school year. At this time the classroom teacher viewed demonstration classes and consulted with the clinic staff members. The classroom teachers received a \$15 stipend for attendance at each session.

A master teacher cooperating with the classroom teacher was also identified as a part of the inservice training program.

The clinic center was made available to the teachers as a reading resource center. A complete explanation of reading resource concerning reading material was presented upon teacher request.

C. Goal Accomplishment.

Teacher competency was increased as indicated by the statistical evaluation of Teacher Objective One (page 52), Teacher Objective Three (page 54, 55) and Teacher Objective Four (page 55, 57). A summary objective identified as Teacher Objective Five for evaluating teacher competency (page 58) indicated that the teachers demonstrated statistical gain in relationship to competency accomplishment for the second year. Although additional gain was indicated for the third program year, the data was not statistical significant.

D. Unique Aspects of the Program and Problems Encountered.

Comparison of two methods of remedial reading instruction.

The first year of program operation provided interesting statistical results in that no statistical difference could be demonstrated in favor of children receiving special reading treatment at the clinic when compared to like children receiving regular classroom instruction.

The program evaluator and the clinic staff attributed the failure of the clinic treatment students to demonstrate gain to the success of the inservice

training program in preparing teachers to deal with children having reading problems in the regular classroom.

The new project director, William Davis, was employed for the second project year. He questioned the result of the first project year and with the assistance of two evaluators, Mr. James Johnson, Ph.D., Psy., and Mr. Gary Ramseyer, Ph.D., Psy., of Illinois State University, Normal, Illinois, determined that an attempt should be made to compare the clinic approach to an approach featuring a specialist assisting the teacher within the classroom. Therefore, three groups were established (see II-Evaluation Data, page 18). The center students were classified as Experimental Group I and received a minimum of two half days of individualized reading instruction. A master teacher possessing major college work in reading was responsible for diagnosing, prescribing and implementing each student's individualized reading program.

The classroom students were classified as Experimental Group II and received special classroom attention. The master teacher aided the classroom teacher in diagnosing, prescribing and implementing an individualized reading program for students who demonstrated reading disabilities. The control school students were identified as Control Group and did not receive program treatment.

The statistical results (page 19-24, Part II, Evaluation Data) indicated that the classroom students identified as Experimental Group II demonstrated greater gain in reading than the students attending the center (Experimental Group I) and the control school students. The students were compared as a group.

An attempt to classify students in Experimental Group II according to the willingness of the teacher to participate in the program was not made. Some teachers did participate reluctantly and others gave wholehearted participation. Teachers who did not want to participate and utilize the master teacher

in a cooperative classroom venture were required to sign a statement to that effect.

In essence the participating classroom teacher was required to utilize the services of a master teacher. The master teachers were scheduled to spend a minimum of $\frac{1}{2}$ hour per week in the classroom with the participating teachers. However, the classroom teachers felt and expressed to the project director dissatisfaction with being coerced into utilizing the master teacher. For that reason the project director and the evaluators determined that it was necessary to change the procedure and allow the teachers to utilize the master teachers at their option.

Therefore the third year of the program differed only in the procedure of having the master teacher spend a minimum of one-half hour per week in the classroom. The classroom teacher was given the option to utilize or not to utilize the master teacher. The statistical results of the third program year demonstrated no statistical differences among Experimental Group I, Experimental Group II and the Control Group. (See evaluation data 25 through 30).

E. A brief summary of major program findings and a recommendation for a research proposal.

The results of comparing program year one, year two and year three indicate two major conclusions. First, the utilization of a master reading teacher as a cooperative teacher to aid the classroom teacher in diagnosing, prescribing and implementing reading programs in the classroom for students demonstrating reading disabilities is superior to removing children with demonstrated reading disabilities from the classroom for reading instruction by a reading specialist.

Second, teacher competency can be increased by the utilization of an in-service training program, but the indication is that the teacher should receive cooperative classroom assistance from a reading specialist at least a minimum of one-half hour per week on a definite assigned basis.

A survey of reading programs (Title I, E.S.E.A.) indicates that 82% of remedial reading programs remove the student identified as a disabled reader from the classroom for special reading instruction. The results of this program indicates that such practice of removing students for specialized instruction is questionable.

Therefore a longitudinal study should be undertaken to determine the most efficient means of improving the plight of the disabled reader. It is therefore recommended that three groups be established utilizing a statistical design that compares large group performance and individual performance and reduces the number of variables that effect outcomes.

The treatment groups should be identified as:

1. A groups receiving instruction based upon a cooperative master reading teacher/classroom teacher diagnosis, prescription and implementation of reading programs in the classroom for students identified as disabled readers.
2. Master reading teacher who diagnoses, prescribes and implements a remedial reading program outside of the regular classroom for students identified as disabled readers.
3. A control school not utilizing the master teacher concept within or outside of the classroom. Specifically, the control school would make no special effort to attack the disabled reading problem other than having the regular classroom teacher deal directly with the problem of the disabled reader.

To guarantee participation and to hold the "halo effect" constant, the groups should be selected from ongoing programs.

This type of selection, although difficult in the initial group identification stage, will provide the best statistical data and will guarantee a truly random sample.

The teachers identified in Groups I and II should be divided equally and two groups for each treatment should be established. The only in-group difference should be that an intensive inservice training program should be conducted for half of the teachers in groups I and II. This program should be conducted by university personnel and should be conducted outside of the regular school setting.

The data should provide information concerning: 1) the relationship between teacher competency and student achievement; 2) the efficacy of remedial reading in the classroom with specialist assistance as opposed to special instruction outside of the regular classroom; and 3) the most efficient means of increasing teacher competency in relation to reading instruction.

PART II.

NARRATIVE REPORT

SECTION I.

Teacher Objective One -- First Year -- 1971-72.

Teachers in grades 1-3 who participate in inservice sessions at the Center will demonstrate competency in diagnosing reading skills to 90% criterion.

The objective was expanded; therefore the target group of participating teachers changed each year--the first project year dealt with teachers of grades one through three; the second project year with teachers of grades four through six; and the third project year with teachers of grades seven and eight. The statistical design for the second and third years was changed from 90% competency to a mean gain significant at the 5% level.

Evaluation - First Year - 1971-72.

An analysis of the results are as follows: Of the 12 teachers taking the test only teacher 9 achieved the 90% competency level of performance criterion established for this objective. The other teachers scored in the following patterns: teacher 1--87%; teachers 2, 5, 7, and 8 scored in the 70% range; teachers 4, 10 and 12 scored in the 60% range; teachers 3, 6 and 11 scored in the 50% range. The mean score of the group was 68. "Why didn't the majority of teachers achieve 90% competency in diagnosing oral reading problems?" Several factors seem related to this question. First, mastery of the symbols that teachers used for recording the oral reading errors took longer than expected. Second, using the diagnostic instrument requires considerable practice--perhaps a short-coming of our inservice program. This became evident when the Paderborn staff attempted to record the errors and found additional errors with each playback of the videotape. Third, the teachers had more difficulty recording the types of errors than they did in identifying them. The most difficulty they had was in recording the comprehension questions accurately. Although they were able to record these questions with 91% accuracy, forty percent of their responses were incorrect. This pulled the group score down to 51% (91-40) accuracy in identifying oral reading errors, 81% accuracy in identifying comprehension errors, and 64% accuracy in recording oral reading errors. The teachers' lowest scores were in recording errors.

Teacher Objective One -- Second Year -- 1972-73.

Teachers in grades four, five and six, who participate in inservice training sessions at the Center will show significant gains at the 5% level in the ability to diagnose reading behavior.

Evaluation - Second Year - 1972-73.

The score which was used in the evaluation of this objective was based on the diagnostic evaluation of three passages containing a total of 18 decisions by the participating teachers. The mean gain score was 2.11, despite an observed negative gain of -.6. Of the 18 teachers for whom both pretest and posttest scores were available, all but 4 showed improvement during the period of the experiment, and only one failed to do as well on the posttest as on the pretest. The t-value for the mean gain score was found to be 3.25, which is significant at the .01 level with 17 degrees of freedom.

The observed improvement in diagnostic skills (p .01) can be interpreted as meeting or exceeding the stated objective which sought differences significant at the .05 level. This improvement in diagnostic ability is perhaps less significant in its having met this objective than in the demonstration of the relationship between adequate diagnostic skills and an effective program in reading improvement. It is also important that the overall difference was found to be significant, since it is not unusual in such experiments for a small number of participants who show no improvement to depress the modal performance of the group. In spite of several such cases, the findings reveal that the objective was satisfactorily met.

Teacher Objective One - Third Year - 1973-74.

A. Teachers in grades 7-8 who participate in inservice sessions at the Center will show significant gains at the 5% level in the ability to diagnose reading behavior.

B. Video tape will be utilized as a pre-post evaluation instrument.

Evaluation - Third Year - 1973-74.

The video tapes which were utilized in evaluating this objective were commercial tapes designed to measure diagnostic skills. The common answer sheet introduced during the second year of the project was again employed this year. Since the relevance of attaining skill in the diagnoses of reading errors is dependent upon the proper remedial recommendation (Teacher Objective III) both of these evaluations were completed at the same time.

The score used in the evaluation of this objective was based on the diagnostic evaluation of three passages containing a total of 18 decisions by the participating teachers. The three passages were presented on a pretest-posttest basis.

Table 1 summarizes the results of the evaluation of Objective I. All of the six teachers from grades 7-8 on which complete data was available made positive gains in error diagnosis with a mean gain of 2.33. The t-value for this mean gain was 4.66, which is significant beyond the .01 level.

Table 1
Tests of Significance on the Videotape Tests
for Teacher Objectives I and II

Subtest	N	Pretest Mean	Posttest Mean	Mean Gain	S.E.	t
Error Diagnosis	6	11.67	14.00	2.33	.50	4.66**
Remediation Techniques		8.67	11.00	2.33	1.36	1.71

** $p < .01$

The observed mean gain in diagnostic skill ($p .01$) can be interpreted as exceeding the stated objective which sought differences significant at the .05 level. Although the sample size was quite small (five other teachers participated but did not take the posttest), each of the six teachers did exhibit improvement in diagnostic skill.

Teacher Objective Two -- First Year -- 1971-72.

Teachers in grades 1-3 will demonstrate competency to group students homogeneously for instruction in relation to skill deficiencies to 90% performance criterion.

Evaluation - First Year - 1971-72.

A breakdown of the results shows: Of the 17 primary teachers who performed on this test, 47% achieved the 90% competence level established for this objective. The others achieved in the following manner: 12% scored in the 75% range, 12% in the 65% range and 29% of the scores fell below the 65% range. The mean percentage for the 17 scores was 75%.

A review of the results illustrates that a substantial number of teachers (8 of 17) achieved or exceeded the competency criterion.

Teacher Objective Two -- Second Year -- 1972-73.

Teachers in grades four, five and six will demonstrate competency to classify students for instruction in relation to skill deficiencies.

Evaluation - Second Year - 1972-73.

Results of the evaluation by interpreting data:
It is somewhat difficult to evaluate the success in meeting this objective due to several factors. First is the confusing nature of the directions. If 7 of the 24 were so thoroughly confused as to invalidate their responses, it is not unreasonable to assume some lowering of the efficiency in those whose responses were retained. Secondly, there is some problem in the criterion used as a key, since the classification by the reading specialists might be in error--or at least no more correct than the groupings done by classroom teachers. Thirdly, hierarchial ratings may or may not be the best method of assigning students to remedial groups. In spite of these difficulties, 4 teachers grouped the students in agreement with the experts in 95% or more of the cases. It is worthy of note that in many instances, the students who were misclassified were placed in groups consistent with their reading needs, but not in the group preferred by the experts. Because of this basic agreement on the needs of the students, it is felt that this objective was satisfactorily met, although the method of assessing it falls short of satisfaction. The inability to statistically evaluate this objective indicated termination. Therefore this objective was unattainable.

This objective was terminated after two years because the objective did not provide for a valid statistical design. The

ability of a teacher to diagnose and classify student reading behavior in agreement with the diagnosis and classification of the reading expert did not verify that the teacher had become competent. The basic goal of the objective was ambitious but the development of the acceptable statistical design to measure attainment of the objective could not be accomplished for the final year of the program.

Teacher Objective Three -- First Year -- 1971-72.

Teachers, grades 1-3, will demonstrate increased competency in selecting appropriate materials for development of specific skills.

Evaluation - First Year - 1971-72.

On a pre/post test design administered in January and March, teachers were asked to list the number of materials that would teach specific skills. The same instrument was used as the pre/post measure. Mean scores were computed. The teachers responses were recorded on a correct/incorrect basis. The results are as follows: The group mean for correct responses on the pretest was $x = 9$. The posttest score was $x = 13.4$. The group mean for incorrect responses on the pretest was $x = 5.6$. The posttest score was $x = 6.0$. The correct responses category, teachers grew 4.4 in their selection of appropriate materials to teach specific skills, but they also increased their incorrect responses by .4. However, this increase was minimal compared to their increase in correct responses.

The results indicate that primary teachers have made substantial gain in their ability to select materials used at the Paderborn Center to teach specific language arts reading skills.

Teacher Objective Three -- Second Year -- 1972-73.

Teachers in grades four, five and six, will demonstrate increased ability to prescribe appropriate materials for development of specific reading behavior.

Evaluation - Second Year - 1972-73.

Table 2

Tests of Significance on the Video Tape Tests for
Teacher Objectives I and III

Subtest	N	Pretest Mean	Posttest Mean	Mean Gain Post-Pre	S.E.	t
Error Diagnosis	18	9.89	12.00	2.11	.65	3.25**
Remediation		8.78	10.61	1.83	.72	2.11
Techniques						

* p .05

** p .01

As can be seen, the mean gain score was 1.83 and its associated t-ratio was 2.11 which is significant at the .05 level with 17 degrees of freedom.

Results of the evaluation by interpreting data:
The same video tapes which were described in the evaluation of Teacher Objective I (Diagnosis of Reading Errors) were utilized in the assessment of success in fulfilling this objective. The result of this procedure added relevance to the experience of diagnosing deficiencies and prescribing appropriate remedial materials to promote progress in reading, in that it made the evaluation task very much like the actual demands of working with real students. There are, however, some shortcomings in employing this approach in testing objectives, since the person making the recommendation must first identify and classify the deficiency before prescribing appropriate materials for the development of specific reading behavior. If the diagnosis is in error, the materials prescribed for remediation will also be inappropriate, and therefore, scored as incorrect. Finding a significant improvement on this objective is then dependent upon successfully fulfilling Objective I.

Higher gain scores and greater improvement could perhaps have been achieved by asking the participants to identify appropriate remedial materials to compensate for a list of reading deficiencies. However, in defense of the technique employed, the added realism of the combined diagnostic-prescriptive task was felt to outweigh the merits of achieving higher scores or greater observed differences in a more artificial format. Nevertheless, the results were found to be statistically significant at the .05 level, and therefore it may be concluded that the objective was successfully met.

Teacher Objective Three -- Third Year -- 1973-74.

Note: This objective was identified as Teacher Objective II for the 1973-74 school year but it should have been identified as Teacher Objective Three. The problem was caused by the termination of Teacher Objective Two. Another objective was added and should have replaced the terminated objective. Unfortunately in the continuation report, objectives three, four and five were elevated one position and a new objective was introduced as Teacher Objective Five-1973-74. The correct order is maintained in this report.

A.
Teachers grades 7-8 will demonstrate increased ability to prescribe appropriate materials for development of specific reading behavior.

B.
Video tape pre and post.

Evaluation - Third Year - 1973-74.

Table 1 page 3 which was previously presented under Teacher Objective I also reports the findings under Objective III. Subsequent to their diagnosis of reading errors in the video tapes, the six teachers were asked to identify the appropriate remediation techniques. As can be seen in the table, the mean gain was 2.33 from pretest to posttest. However, the t-value of 1.71 for this mean gain fell short of significance at the .05 level.

Although the mean gain was non-significant, the fact that overall improvement on remediation was observed is by itself quite important. Several plausible explanations exist for the failure to achieve statistical significance. First, the skimpy sample size in this case certainly lowers the power of the statistical test. Secondly, a teacher making a recommendation must first identify and classify the deficiency before prescribing proper remediation techniques. If the diagnosis is in error, the method prescribed for remediation will also be inappropriate, hence, scored as incorrect. Thus, a high score under remediation is somewhat dependent upon a high diagnostic score. However, the realism of this combined diagnostic-prescriptive evaluation format was felt to outweigh the merits of achieving artificial independence between the two tasks. In any event, Objective III at best was marginally satisfied.

Teacher Objective Four -- First Year -- 1971-72.

Teachers will increase competency in developing appropriate evaluation (questioning) devices for reading comprehension.

Evaluation - First Year - 1971-72.

Each Paderborn staff member evaluated the results of the primary teachers' written questions. Then the results were compared and a consensus opinion determined whether the questions were literal, interpretive or evaluative.

The majority of questions asked on the pre-tests were of the literal type. Second, came the evaluative type, with interpretive questions being the least asked. A percentage breakdown would indicate the following: Literal 69%, Interpretive 13%, Evaluative 18%. The posttest results show a drastic change in the types of questions asked by the primary teachers. The greatest change occurred between the literal and interpretive type questions. Dr. Richardson, reading consultant, S.I.U. Edwardsville, stressed the importance of asking more interpretive and fewer literal type questions and listed the following criteria: Literal 10%, Interpretive 80% and Evaluative 10%. The teachers responded by increasing their interpretive type questions from 13% to 53% and decreasing their literal type from 69% to 12%. The teachers increased their evaluative questions from 18% to 35%. Although the teachers did not reach the criteria set by Dr. Richardson, they did make substantial gains in their ability to ask high level reading-thinking questions.

Teacher Objective Four -- Second Year -- 1972-73.

Teachers grades 4-6 will increase competency in developing appropriate evaluation (questioning) devices for reading comprehension.

Evaluation- Second Year-1972-73.

On the pretent administered in September, the percentages of questions falling into each category were Literal 63%, Interpretive 22% and Evaluative 15%.

The posttest, administered in February to the same teachers, resulted in the following percentages: Literal-30%, Interpretive-39%, Evaluative-32%.

The improvement was measured statistically by testing the mean gain in the proportion of higher-level (interpretive and evaluative) questions. The data were scores from the 22 teachers for

whom both pre and posttest scores were available. The t-value of such a test was found to be 6.48, which is significant at the .01 level (p .01) for 21 degrees of freedom. Table 3 summarizes these findings.

Table 3

Test of Significance on Proportion of Interpretive and Evaluative Questions for Teacher Objective IV

N	Pretest Mean Proportion	Posttest Mean Proportion	Mean Gain in Proportion	SE	t
22	.37	.71	.34	.05	6.48**

** p .01

Results of the evaluation by interpreting data:
The statistical analysis indicates that the teachers were quite successful in increasing their competency in developing appropriate evaluation devices for reading comprehension.

Teacher Objective Four -- Third Year -- 1973-74.

A. Teachers grades 7-8 will increase competency in developing appropriate evaluation (questioning) devices for reading comprehension.

B. The test will be developed by the Center's staff.

Note: This objective was identified as Teacher Objective Three for the 1973-74 school year. It should have been identified as Teacher Objective Four. See page 7 for explanation.

Evaluation-Third Year-1973-74.

On the pretest administered in September, the percentages of questions falling into each category are depicted below:

49%
LITERAL

35%
INTERPRETIVE
10 22

16%
EVALUATIVE

The posttest administered in March to the same teachers resulted in the following percentages:

34%
LITERAL

32%
INTERPRETIVE

34%
EVALUATIVE

The above improvement was analyzed statistically by testing the mean gain in the percentage of higher level questions (interpretive and evaluative). The data were scores from the seven teachers for whom both pre and posttest scores were available. The mean percentage gain in higher level questions was 15%, which fell short of statistical significance. Table 4 summarizes this analysis.

Table 4

Test of Significance on Percentage of Interpretive and Evaluative Questions for Teacher Objective IV

N	Pretest Mean Percentage	Posttest Mean Percentage	Mean Gain	S.E.	t
7	51%	66%	15%	8%	1.88

This objective was marginally satisfied. From the graphical evidence, the teachers did shift moderately to higher level questions on the posttest. However, these gains were not sufficiently pronounced to attain statistical significance.

Teacher Objective Five -- First Year -- 1971-72.

Teachers, grades 1-3, will increase in content knowledge about language arts-reading processes.

Evaluation - First Year - 1971-72.

Procedure: the primary teachers pre/post tests scores were compared by using the hypothesis $H_0 : U_D = 0$. A mathematical formula was used to determine the statistical significance of the results. A few teachers either forgot their number or did not take the pretest because they were new to the districts or from parochial schools. These teachers were assigned the pregroup mean score of 28 in order to use all 17 scores for comparison purposes. The table below lists the results:

Table 5

Mean Difference	Standard Deviation of Difference	t	t(N-17)
28.4	6.6	17.7	.001

The primary teachers from the participating schools, as a group, made significant progress in their content knowledge of the language arts reading processes. This growth seems related to their participation to the inservice activities of the Paderborn Project since all these activities were designed to improve teacher knowledge of their important skills.

Teacher Objective Five -- Second Year -- 1972-73.

Teachers will increase content knowledge about the language arts and reading process.

Note: The evaluators and the project director determined that the statistical design for this objective was redundant in that it was actually a composite evaluation of the previous objectives; therefore, for the remaining project years this objective provided a summary evaluation.

Evaluation - Second Year - 1972-73.

In discussing the achievement of this objective, the results reported on the previous four objectives leaves little doubt as to the successful attainment of promoting increased content knowledge about the language arts reading process, in participating teachers. Since pretest and posttest comparisons were utilized in Objective I, III, and IV, and significant gains were observed in all cases, each conclusion stated for those objectives is supportive of success in meeting Objective V. The stress on simulating actual experiences in the assessment of diagnosing reading skills (Objective I) and prescribing remedial tasks (Objective III) adds to the relevance of this objective to actual practices. Significant improvement was also observed in the level of questioning developed by the teachers (Objective IV), and although the setting for this test was more artificial, the classroom teacher often develops evaluative material (questions) outside the classroom setting. Although a pre and posttest format was not used on Objective II, the success of some teachers in grouping students for instruction in light of skill deficiencies supports a terminal skill in this area as well.

In terms of future efforts, added attention might be given to an improved level of performance in each of the areas. Although there is no question about the success in meeting the objectives so far as finding significantly improved levels of skill in the areas concerned, it is desirable that the teachers make as many correct diagnoses as possible. While it would be unsatisfactory for a classroom teacher to correctly diagnose only about 60% of the reading problems of the student, it should be remembered that in the actual school setting, the teacher is not limited to the restricted behavioral sample which practical considerations make mandatory in data collection for a project such as this. In terms of observations made from a single episode, the levels of skill presented by the teachers posttest performances might be quite acceptable.

In summary, the final objective seems to have been satisfactorily met by the participating teachers' improved performances at the end of the present project year.

Teacher Objective Five -- Third Year -- 1973-74.

A. Teachers will increase in content knowledge about language arts-reading process.

B. Evaluation devices will be designed to evaluate knowledge, skills, and applications gained on each inservice topic. Evaluation of Objectives One, Two, Three will provide baseline data.

Note: This objective was identified as Teacher Objective IV for the 1973-74 school year. It should have been identified as Teacher Objective V. See page 7 for explanation

Evaluation - Third Year - 1973-74.

Since this is a summary objective, the results previously presented under objectives I-III should be reviewed. The tables and graphs will not be repeated in this section.

Pretest and posttest comparisons were utilized in each of the Objectives I-III and IV. In each of these analyses, teacher improvement was exhibited, but only in the case of error diagnoses was the gain statistically significant. Since the sample sizes were extremely small (6 for Objectives I and II and 7 for Objective IV), the failure to achieve significance is not as damaging to the fulfillment of these objectives as would be the case with larger samples. It is particularly noteworthy that on the 12 pretest-posttest differences obtained for the six teachers under error diagnosis and remediation combined, only one difference resulted in a negative gain. Also worthy of mention is the fact that under Objective III, the seven teachers increased their productivity of the highest level questions (evaluative) by an average of 18% (See graph).

In summary, considering the size of the samples involved, Objectives I-III and IV were marginally satisfied.

Teacher Objective Six -- Third Year -- 1973-74.

A sequential reading curriculum written in objective form, that provides the learner with the opportunity to utilize alternate styles of learning how to read and provides the teacher with the opportunity to match varied types of educational materials and equipment to the learners individual styles, will be developed for utilization of the seven cooperating school districts. The curriculum will be completed by April 7, 1974.

Note: This objective was classified as Teacher Objective Five for the 1973-74 school year but should have been identified as Teacher Objective Six. See page 7 for explanation.

Evaluation - Third Year - 1973-74.

Sequential reading curriculum written in objective form was developed by April 7, 1974 and reproduced by April 30, 1974 and distributed to all teacher participants May 24, 1974. A survey of the teachers indicates that 60% intend to utilize the curriculum as an aid for planning their instructional reading program.

Student Objective One -- First Year -- 1971-72.

The individual student will increase his competency in reading.

Evaluation - First Year - 1971-72.

The two major elements of the program are to be measured by changes in individual student performance. The two treatment groups are named Experimental I and Experimental II. The treatments are as follows:

Experimental Group I: A pool of students (Group A) was selected from the cooperating districts using Wilson's Criteria. Of this pool, 39 were assigned for individualized treatment at the Center. A second group (Group B) was randomly selected from second and third grade students in the district scoring, in second grade, between 1.6 and 2.0 (grade equivalent), or at stanine 4 in third grade. These students received their reading instruction at the Center by the Center professional staff.

Experimental Group II: After the pool of students was defined using Wilson's Criteria, and 39 (Group A) were randomly assigned to the Center, the remainder were included in Experimental Group II. The remainder (Group B) of Experimental Group II consisted of randomly chosen students from grades two and three as described for Experimental Group I. The treatment for Experimental Group II consisted of instruction by the regular classroom teachers, all of whom were involved in the inservice activities at the Center. The ultimate goal of the inservice activities was to bring about changes in the students taught by the affected teachers.

Some students in both Experimental Group I and Experimental Group II were lost from the sample because they moved from the district, were absent during the testing schedule or were withdrawn from the program. As a result the sample size of both Experimental groups is smaller.

The Gates-MacGinitie Readiness Test, Gates MacGinitie Primary A, and Stanford Diagnostic Reading Tests were used as the measures in the respective groups. Forms 1 and 2 (Primary A) of the Gates were used for grade two. Based on data presented on page 8 of the technical manual accompanying this test, the standard error of measurement for the Vocabulary section is 3.7, and for the Comprehension section is 2.5.

The gains of each pupil are reported in Standard Error of Measurement units.

A confidence interval of 90% is established. That is, if the gain by the student would have occurred less than 10% of the time by chance alone, the assumption is made that the student has made a "real" gain. A 90% confidence interval (under the usual assumption of normality) translates to a change of 1.28 standard error units. Thus the tables reflect the probability of the change in student performance by chance alone.

Results of the evaluation by interpreting data:

Results from Experimental Group I-A--Second Grade: On Vocabulary, 11 of the 14 students (79%) made significant gains, and in comprehension the figure is 10 of 14 (71%). Five students (3, 4, 6, 10 and 12) did not make significant gains in at least one of the two sub-tested areas.

Results from Experimental Group II-A--Second Grade: (n=10) Of these, 9 of 10 (90%) made significant gains. Only student No. 8 fell short of a significant gain, and this only in comprehension.

For students in Experimental I and II at Grade 3, the Stanford Diagnostic Reading Test (Level I) was used in a pre/post design (Forms W and X). Based on data given in the Teachers manual for these tests (page 29), the standard error of measurement and reliability coefficient are: SEM= 1.7
Reliability= 95

Using the same confidence level used for Grade 2 (90%) here is a breakdown of the gains for the Experimental I and II Group A third grade students.

Results from Experimental Group I-A-Third Grade: Indicates that 81% (17 of 21) made substantial progress in reading achievement. Of these, all 17 students scored below the .01 level of significance.

Results from Experimental Group II-A-Third Grade: Sixty percent (9 of 15) of the students have made significant gains, seven achieved below the .01 level of significance. Of the six students who failed to make significant gains in reading achievement, 4 had lower raw scores (-) on the posttest than on the pretest.

Results from Experimental Group I-B-Second Grade: 56% (9 of 16) of the students made substantial improvement in reading. A further analysis showed that 88% (14 of 16) made significant progress in vocabulary and 63% (10 of 16) made progress in comprehension. Five of these students scored below the .01 level of significance.

Results from Experimental Group II-B-Second Grade: 75% (9 of 12) achieved significant reading growth. 92% (11 of 12) showed substantial progress in vocabulary and 67% (8 of 12) made progress in comprehension. 67% (6 of 9) of these scores fell below the .01 level of significance.

Results from Experimental Group I-B-Third Grade: 75% (12 of 16) of the students made substantial improvement. Of these, 83% (10 of 12) were below the .01 level of significance.

Results from Experimental Group II-B-Third Grade: 75% (13 of 17) of the students made significant progress. One hundred percent of their scores fell below the .01 level of significance.

Statistical Summary:

60% of the total number from the second grade Group A and B students attending the Paderborn Center made significant progress in both vocabulary and comprehension. 83% showed progress in vocabulary and 67% showed progress in comprehension from these groups.

82% of the students from the regular second grade classes in Groups A and B showed substantial growth in reading achievement. 96% achieved significant progress in vocabulary and 78% showed progress in comprehension.

Of the total number of third grade students attending the Paderborn Center from Groups A and B, 78% made substantial progress in reading comprehension. Also, 68% of the third grade students from the regular classroom Group A and B showed significant improvement.

Student Objective One -- Second Year -- 1972-73.

Students, grades 4-6, will increase their competency in Reading.

Proposed Procedures and Activities:

From each grade level 4, 5 and 6 in public and private schools, sixty students shall be identified by teacher recommendations and by applying Wilson's criteria to scores derived on the Stanford Diagnostic Test. Twenty-five students from each grade level shall be selected for Center attendance and thirty students shall be identified for individual classroom programs. The Center students will be classified as Experimental Group I and the classroom students will be classified as Experimental Group II. A control group will be established at a school that is not participating in the project. The same selection as utilized in identifying Experimental Group I and II will be utilized. The control group will not receive any of the Center's program treatment. Experimental Group I will receive two half days a week of instruction at the Center. The instruction shall utilize team, micro-teaching, individualized instruction as instructional strategies in conjunction with a Learning Center. Experimental Group II will have their program planned by the Center specialist in conjunction with their classroom teacher. The Center specialist will spend a minimum of one half hour per week working with each classroom teacher involved in the project.

Proposed Evaluation:

Establish Experimental Group I and II. Establish the control group. The gain scores of Experimental Group I and II will be compared to the gain scores of the control group. Gain scores to be determined by the Stanford Diagnostic Reading Test administered in September as a posttest. A 90% confidence interval for each individual student will be utilized. It is then possible to say that any student moving 1.28 standard error units has gained in a non-random manner.

A control group will be established at a school that is not participating in the project. The same selection as utilized in identifying Experimental Group I and II will be utilized. The control group will not receive any of the Center's program treatment.

Evaluation - Second Year - 1972-73.

The evaluation of the group performances on Objective I was pursued by employing the statistical technique of analysis of covariance (ANOCOVA). This procedure is appropriate because it removes all variation in the posttest scores that can be accounted for by differences in the pretest scores. Essentially, ANOCOVA yields adjusted posttest means for the treatment groups which actually represent what the posttest means would have been had all the pretest means been equal. Differences in adjusted posttest means can then be tested for significance.

Tables 6 - 13 represent a summary of the group performances of grades 4, 5, and 6 on Objective I. Although not shown in the tables, for each ANOCOVA, a preliminary test of homogeneity of regression coefficients was carried out to ascertain whether the slope of the regression line within each group was the same. In all cases, the F-ratio was non-significant and the assumption was supported. Thus, the main analyses were conducted.

As can be seen in Tables 6 and 7 the ANOCOVA on the 4th grade SDRT comprehension scores was nonsignificant. This implies that the adjusted posttest means for the three treatment groups did not differ significantly even though each group made moderate gains in mean grade equivalent scores from pre to posttest. Thus, neither Experimental Group I (students who attended the Paderborn Center) nor Experimental Group II (students who received reading assistance in their regular schools from teachers served by the Paderborn Center) showed significantly greater gains than students in the control group (students in a school outside the district affected by the Paderborn Center.)

Table 6
Grade Equivalent Means for Grade 4 on the SDRT Test
for Student Objective I

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Exp. II	21	2.48	3.28	3.21
Exp. I	23	2.33	2.96	3.04
Control (N.A.)	10	2.44	3.27	3.24

Table 7

ANCOVA Summary on the Grade 4 SDRT Grade Equivalent
Scores for Student Objective I

Sources	ss	df	ms	F	
Groups (adj.)	.43	2	.22	.62	N.S.
Within Groups (adj.)	17.58	50	.35		
Total (adj.)	18.01	52			

Tables 8 - 10 summarize the performance of 5th. grade students on Objective I. Table 9 indicates that the F-ratio was significant at the .01 level and thus differences among the adjusted posttest means for the three groups (Experimental I, Experimental II, and Control) may be inferred. The subsequent follow-up tests in Table 10 identified a significant difference between Experimental Group II and the Control Group ($p = .01$) in favor of the former, but no significant difference between Experimental Groups I and II or between Experimental Group I and the Control. The finding supports the philosophy upon which the Paderborn project was initiated, in that the availability of a resource center for teachers would result in large improvements in student reading achievement without the necessity of bringing the students to the center itself. While a significant difference was not found between Experimental Group I and the Control Group, the observed difference in favor of Experimental I was in the expected direction. Finally, it should be pointed out from Table 8 that both experimental groups increased their mean grade equivalents from late grade 2 on the pretest to early to middle grade 4 on the posttest. This, in itself, is quite an accomplishment.

Table 8

Grade Equivalent Means for Grade 5 on the SDRT Test
for Student Objective I

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Exp. II	22	2.92	4.60	4.53
Exp. I	29	2.72	4.10	4.16
Control (N.A.)	8	2.88	3.64	3.59

Table 9

ANOCOVA Summary on the Grade 5 SDRT Grade Equivalent
Scores for Student Objective I

Scources	ss	df	ms	F
Groups (adj.)	5.38	2	2.69	5.09**
Within Groups (adj.)	29.09	55	.53	
Total (adj.)	34.47	57		

** $p < .01$

Table 10

Follow-Up Tests on Grade 5 Adjusted Means for Student
Objective I

Comparison	Difference in Adjusted Posttest Means	S.E.	t
Exp. II vs. Exp. I	.37	.21	1.76
Exp. II vs. Control	.94	.30	3.13**
Exp. I vs. Control	.57	.29	1.96

** $p < .01$

Tables 11 - 13 present the findings with respect to the 6th graders on Objective I. The findings for 6th graders paralleled those for the 5th grade with the exception that the results here were significant at the .05 level rather than the .01 level. The adjusted posttest means for the Experimental II and Control groups again differed significantly, but the other two comparisons were non-significant. Table 11 shows that in both experimental groups the students increased their mean grade equivalents from roughly mid to late grade 3 on the pretest to mid to late grade 4 on the posttest. These mean gains are not quite as impressive as those for the 5th grade. However, the overall conclusion that can be reached is that, for 6th graders as well as 5th graders, substantial reading improvement can be realized by utilizing the resources of the Paderborn Center in the actual classrooms without transporting the students to the Center.

Table 11

Grade Equivalent Means for Grade 6 on the SDRT Test
for Student Objective I

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Exp. II	22	3.76	4.97	4.87
Exp. I	26	3.45	4.36	4.46
Control (N.A.)	13	3.61	4.06	4.05

Table 12

ANCOVA Summary on the Grade 6 SDRT Grade Equivalent
Scores for Student Objective I

Sources	ss	df	ms	F
Groups (adj.)	5.44	2	2.72	3.72*
Within groups (adj.)	41.60	57	.73	
Total	47.03	59		

* $p < .05$

Table 13

Follow-Up Tests on Grade 6 Adjusted Means for Student
Objective I

Comparison	Difference in Adjusted Posttest Means	S.E.	t
Exp. II vs. Exp. I	.41	.25	1.64
Exp. II vs. Control	.82	.30	2.73*
Exp. I vs. Control	.41	.29	1.41

* $p < .05$

The evaluation of individual performances on Objective I was performed by using a 90% statistical confidence interval. This essentially amounts to determining whether or not each individual student associated with PLARC has achieved a non-random gain in reading competency that would occur by chance only 10% of the time or less. Thus, for each student in Experimental Groups I and II, the raw score gain from pretest to posttest was converted to standard error of measurement (S.E.M.) units and then compared with the critical value of 1.28 associated with a 90% confidence interval.

Table 14 reports the summary information concerning the number of non-chance gains made by the students in Experimental Groups I and II for grades 4-6. In contrast to the data reported on group performances, 100% and 83% of the 4th graders in Experimental Groups II and I respectively attained significant gains in S.E.M. units. Of course, it must be remembered that S.E.M. = 1.5 for the grade 4 norms of the S.D.R.T. Since this value is rather small relative to the S.E.M. for the grades 5 and 6 norms (3.5 and 2.9, respectively), a relatively small raw score gain can result in a non-chance improvement. In spite of this fact, these percentages of significant individual gains at grade 4 do represent real gains and somewhat make up for the non-significant comparisons between treatments obtained earlier for this grade. The individual results were most impressive at grade 5 with 86% and 83% of the students in Experimental Groups II and I respectively achieving significant gains. This is particularly noteworthy since S.E.M. = 3.5 for this grade and thus non-chance gains require a large raw score gain. The results for grade 6 were somewhat surprising and disappointing. Here, only 73% and 65% of the students in Experimental Groups II and I respectively moved significantly beyond chance. The real concern at grade 6 is the alarming number of no gains or losses for both groups (9% and 23% respectively). These percentages may partially be explained by the cumulative frustration that an ineffective reader faces by the time he reaches the 6th grade.

Table 14

Numbers of PLARC Students Achieving Non-Chance Raw Score
Gains in Reading Competency for Grades 4-6
for Objective I

Grade	Group	N	No Gain or Loss	NonSignificant Gain	Significant Gain
4	Exp. II	21	0 (0%)	0 (0%)	21 (100%)
	Exp. I	23	3 (13%)	1 (4%)	19 (83%)
5	Exp. II	22	0 (0%)	3 (14%)	19 (86%)
	Exp. I	29	1 (3%)	4 (14%)	24 (83%)
6	Exp. II	22	2 (9%)	4 (18%)	16 (73%)
	Exp. I	26	6 (23%)	3 (12%)	17 (66%)

Results of the evaluation by interpreting data:
The findings summarized by Tables 6-14 suggest that success was realized in fulfilling Objective I. Although some problem is posed in accounting for the failure to find significant differences among the three treatment groups at grade 4, this result is mitigated by the high percentage of individuals in the Experimental Groups that achieved non-chance raw score gains at this grade. One possible explanation of the former finding is that 4th graders are slower to respond to remedial treatment of any type and hence no significant differences between mean grade equivalent gains could be expected. The greater adjusted posttest grade equivalent means exhibited by the 5th and 6th graders in the Experimental II groups endorses the concept of the PLARC Center. In fact, the greater improvement of students in regular classes taught by the participating teachers is particularly encouraging in view of the logistical problems of transporting children from a school setting to a special center.

Student Objective One -- Third Year -- 1973-74.

A. Students, grades 5, 6 and 7 will increase their competency in reading in the following patterns: Using a 90% confidence level, it is possible to say that any student moving 1.28 standard error units has gained in a non-random manner. That is, over the long run, a gain of 1.28 or more SEM units would occur by chance only 10% (or less) of the time.

B. The gain scores of the Experimental Groups I and II will be compared to the gain scores of the control group. Gain scores are to be determined by the Stanford Diagnostic Reading Test administered in September 1972 and March 1973 as pretests and in March 1974 as a posttest.

Evaluation - Third Year - 1973-74.

The evaluation of the group performances on Objective I was conducted through the statistical technique of analysis of covariance (ANOCOVA). This technique is essentially a combination of regression analysis and analysis of variance. The procedure yields adjusted posttest means for the treatment groups which actually represent what the posttest means would have been had all pretest means been equal. The differences in adjusted posttest means are then tested for significance through an analysis of variance. In the analysis for the present year, pretest scores were taken as the SDRT scores collected at the end of the 1972-73 project year. Posttest scores were taken as the SDRT scores collected at the end of the current 1973-74 project year.

Tables 15-19 represent a summary of the group performance of grades 5, 6 and 7 on Objective I. Although not shown in the tables, for each ANOCOVA a preliminary test of homogeneity of regression coefficients was carried out to ascertain whether the slope of the regression line within each group was the same. In all cases the F-ratio was nonsignificant and the assumption was upheld. Thus, the main analysis were conducted.

Table 15

Grade Equivalent Means for Grade 5 on the SDRT Test
for Student Objective I

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Experimental II	18	3.24	4.43	4.36
Experimental I	17	2.98	4.04	4.13
Control (N.A.)	5	3.24	4.80	4.73

Table 16

ANOCOVA Summary on the Grade 5 SDRT Grade Equivalent
Scores for Student Objective I

Sources	ss	df	ms	F
Groups (adj.)	1.52	2	.76	1.08
Within (adj.)	25.48	36	.71	
Total (adj.)	27.00	38		

Table 17
Grade Equivalent Means for Grade 6 on the SDRT Test
for Student Objective I

Groups	N	Pretest Mean	Posttest Mean	Adjusted Post- Test Mean
Experimental II	19	4.76	5.35	4.98
Experimental I	21	4.07	4.75	4.90
Control (N.A.)	8	3.64	4.01	4.49

Table 18
ANOCOVA Summary on the Grade 6 SDRT Grade Equivalent
Scores for Student Objective I

Sources	ss	df	ms	F
Groups (adj.)	1.17	2	.58	.66
Within (adj.)	39.21	44	.89	
Total (adj.)	40.38	46		

Table 19

Grade Equivalent Means for Grade 7 on the SDRT Test
for Student Objective I

Groups	N	Pretest Mean	Posttest Mean	Adjusted Post- Test Mean
Experimental II	18	5.03	5.56	5.13
Experimental I	19	4.12	4.79	5.11
Control (N.A.)	8	4.30	5.65	5.82

Table 20

ANOCOVA Summary on the Grade 7 SDRT Grade Equivalent
Scores for Student Objective I

Sources	ss	df	ms	F
Groups (adj.)	3.19	2	1.60	3.38 *
Within (adj.)	19.36	41	.47	
Total (adj.)	22.55	43		

* $p < .05$

As can be seen in Tables 15 - 18, the ANOCOVA's on the 5th and 6th grade SDRT comprehension scores were nonsignificant. This implies that the adjusted posttest means for the three treatment groups at each of these grade levels did not differ significantly even though each group made moderate gains in mean grade equivalent scores. Thus, in grades 5 and 6, neither Experimental Group I (students who attended the Paderborn Center) nor Experimental Group II (students who received reading assistance in their regular schools from teachers served by the Paderborn Center) showed significantly greater gains than students in the Control Group (students in a school outside of the district affected by the Paderborn Center.)

Tables 19 and 20 indicate that for grade 7 the ANOCOVA conducted was significant at the .05 level. Thus, differences among the adjusted posttest means for the three treatment groups may be inferred. When follow-up tests were performed on the adjusted posttest means of Table 19, the Control Group adjusted SDRT mean was significantly higher than both the Experimental I and Experimental II adjusted means. This finding was certainly contrary to the hypothesis of this objective.

The evaluation of individual performances on Objective I was performed by using a 90% statistical confidence interval. This essentially amounts to determining whether or not each individual student enrolled in PLARC has achieved a non-random positive gain in reading competency that would occur by chance only 10% of the time or less. Thus, for each student in Experimental Groups I and II, the raw score gain from pre to posttest was first converted to standard error of measurement (S.E.M.) units. Each of these measures was then compared with the critical value of 1.28 associated with a one-ended 90% confidence interval.

Table 21 reports the summary information concerning the number of non-chance gains made by the students in Experimental Groups I and II for grades 6 and 7. It is important to note that the gains for grade 5 are not included in this table because the pretest and posttest involved two different levels of the SDRT test and the raw scores were not directly comparable.

Table 21

Numbers of PLARC Students in Grades 6 and 7
Achieving Non-Chance Raw Scores Gains in
Reading Competency for Student Objective I

Grade	Group	N	No Gain or loss	Nonsig. Gain	Significant Gain
6	Experimental II	19	3 (16%)	4 (21%)	12 (63%)
	Experimental I	21	3 (14%)	3 (14%)	15 (72%)
7	Experimental II	18	4 (22%)	6 (33%)	8 (45%)
	Experimental I	19	3 (16%)	4 (21%)	12 (63%)

In contrast to the results reported on groups performances, the individual gains in Table 21 are somewhat more encouraging. Of the 6th graders in Experimental Groups II and I, 63% and 72% respectively showed significant non-chance gains. The percentages for the 7th grade were slightly lower. Here, 45% and 63% respectively moved significantly in the positive direction. These lower percentages may probably be partially attributed to the cumulative frustration that an ineffective reader encounters by the time he reaches the 7th grade.

The findings summarized by Tables 15 - 21 suggest that limited success was realized in fulfilling Objective I. While most of the gains in mean grade equivalents displayed by the Experimental I and Experimental II groups were moderate in size, they were statistically no larger than those exhibited by the Control Group which received no special reading instruction. In fact, at Grade 7 the Control Group outperformed both Experimental Groups in a statistically significant fashion. These results are certainly in sharp contrast to the 1972-73 results in which the Experimental II Group statistically outdistanced both the Experimental I and Control groups for grades 5 and 6. One possible explanation of the disappointing group performances for the current year might be that students, after being in the program several years, have possibly grown weary through the continual effort made by the PLARC staff to increase their reading competency. These students, in a sense, have "spent" themselves and no longer appear to be able to reap the benefits of specialized reading instruction.

In terms of individual gains, the 6th grade percentages of non-chance gains in both Experimental Groups roughly matched those of the 1972-73 project year. Since the current 5th grade individual raw gains were not meaningful, grade 6 was the only one in which this type of comparison could be made. Again, the percentages from Table 21 and the percentages from grades 4 and 5 from the prior year support the notion that as the grade level increases, the student has a more difficult time in attaining a non-chance gain in reading competency.

Student Objective Two -- First Year -- 1971-72.

Students, Grades 1-3, given participation in the Center will indicate a greater satisfaction 1) with school in general, 2) with reading as a subject, and 3) with self-achievement in reading than those students who have not participated in treatment at the Center.

Evaluation - First Year - 1971-72.

A 36 item attitude inventory was administered to the students in Experimental I and Experimental II. Due to the small population all students in the Experimental I group and Experimental II group were given the inventory. The inventory had four subsections: self-concept, self-peer-concept, school-concept, and reading-concept. The overall results are reported below:

	<u>mean</u>	<u>var.</u>	<u>s.d.</u>	<u>sem</u>	<u>rel.*</u>	<u>n.</u>
Exp. I	18.71	27.59	5.25	2.72	0.72	62
Exp. II	18.00	20.46	4.52	2.70	0.63	57

* computed using Hoyt's Analysis of Variance Technique.

The difference in mean scores of the two groups is not statistically significant.

Student Objective Two -- Second Year -- 1972-73.

Students, grades 4-6, in schools affected by Title III, ESEA Paderborn Project will indicate greater satisfaction with school in general, with reading as a subject and with self-achievement in reading than students in the control group not affected by Title III, ESEA.

Evaluation - Second Year - 1972-73.

An attitude scale was designed by the Paderborn Staff which was intended to tap each of the areas listed above: (1) satisfaction with school, (2) satisfaction with reading, and (3) satisfaction with self-achievement in reading. Although the three categories were included in a single instrument the findings suggest that Objective II was not satisfied.

Table 22

Test of Significance on Posttest Attitude Scores
for Grades 4-6 for Student Objective II

Grade	Control N	Exp. N	Factors	Control Mean	Exp. Mean	Diff. (E-C)	SE	t
4	8	18	Interest in reading	9.63	9.22	-.41	.64	.64NS
			Achievement in read.	7.38	7.33	-.05	.62	.08NS
			Attitude toward sch.	12.13	10.94	-1.19	.75	1.59NS
5	8	20	Interest in reading	9.50	9.40	-.10	.50	.20NS
			Achievement in read.	6.50	6.90	.40	.65	.62NS
			Attitude toward sch.	12.38	11.50	-.87	.64	1.36NS
6	17	21	Interest in reading	8.82	8.86	.04	.48	.08NS
			Achievement in read.	7.35	7.14	-.21	.48	.44NS
			Attitude toward sch.	11.06	11.43	.37	.53	.70NS

No significant differences were found in attitudes between the Experimental Groups and the Control Groups across all grade levels and attitudinal categories.

Student Objective Two -- Third Year -- 1973-74.

A. Students, Grades 5-7, in schools affected by Title III, ESEA, Paderborn Project will indicate a greater satisfaction

- 1) with school in general
- 2) with reading as a subject, and
- 3) with self-achievement in reading than those students in the control group from a school not affected by Title III, ESEA.

B. A pre/post Attitude Instrument, developed by the evaluators, will be administered to the students in the Title III program and to the control group students.

Evaluation - Third Year - 1973-74.

The attitude instrument used to evaluate this objective was a modification of the Self Perception Inventory by Soars and Soars. This modification will henceforth be referred to as the Children's Self-Description Scale (CSDS). This instrument contains four subscales measuring a child's attitude toward (a) self, (b) peers, (c) family and (d) school. All totaled, the instrument contains 30 statements where each statement loads under one of the above subscales and is scored from 1-5. A high score on a subscale is indicative of a favorable attitude toward the particular target situation. (A copy of the instrument is included in the appendix of this report.)

The above instrument was administered on a pretest-posttest basis to the Experimental I (Paderborn Group) and the Control Group of this study. No attempt was made to differentiate the results by grade level since the individual scores were not so identified. An ANOCOVA was performed on the pre and posttest scores for each subscale of the DSDS. Tables 23 - 30 report the findings of these analyses for grades 5-7 combined.

Table 23

Self Attitudinal Means for Student Objective II

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Experimental I	28	21.54	22.04	21.61
Control	70	20.41	20.40	20.57

Table 24

ANOCOVA Summary on Self Attitudinal Scores
for Student Objective II

Sources	ss	df	ms	F
Groups (adj.)	21.49	1	21.49	1.87
Within (adj.)	1090.35	95	11.48	
Total (adj.)	1111.84	96		

Table 25

Peer Attitudinal Means for Student Objective II

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Experimental I	28	19.82	19.61	19.51
Control	70	19.33	19.13	19.17

Table 26

ANOCOVA Summary on Peer Attitudinal Scores
for Student Objective II

Sources	ss	df	ms	F
Groups (adj.)	2.21	1	2.21	.16
Within (adj.)	1327.38	95	13.97	
Total (adj.)	1329.59	96		

Table 27

Family Attitudinal Means for Student Objective II

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Experimental I	20	24.29	24.07	24.12
Control	70	24.44	23.60	23.58

Table 28

ANOCOVA Summary on Family Attitudinal Scores
for Student Objective II

Sources	ss	df	ms	F
Groups (adj.)	5.84	1	5.84	.32
Within (adj.)	1712.34	95	18.02	
Total (adj.)	1718.18	96		

Table 29

School Attitudinal Means for Student Objective II

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Experimental I	28	35.36	33.50	33.13
Control	70	33.71	32.80	32.95

Table 30

ANOCOVA Summary on School Attitudinal Scores
for Student Objective II

Sources	ss	df	ms	F
Groups (adj.)	.70	1	.70	.02
Within (adj.)	3698.29	95	38.93	
Total (adj.)	3698.99	96		

The results can be summarized briefly by stating that none of the four attitudinal subscales produced a significant difference between the adjusted posttest means of the Experimental I and Control Groups. This, of course, implies that for each subscale the average gain (or loss) of the Experimental I Group did not differ significantly from the average gain (or loss) of the Control Group. In reality, on three of the subscales (Peers, Family, and School), mean losses in favorable attitude were posted by both groups from pretest to posttest. The only subscale that registered a mean gain in favorable attitude was the Self subscale and in this case only by the Experimental I Group.

The instrument used in this year's project to assess attitudinal changes was felt to be far more sensitive than last year's instrument since it was patterned after a standardized test and contained many more items. This latter advantage produced the desired score variability that was badly lacking in last year's make-shift test. In spite of the above refinement, only small mean shifts were observed on the four subscales and on three of these the movement was toward a less favorable attitude. It is somewhat encouraging to note that the Experimental Group I did show a mean gain of .5 toward a more favorable self-attitude. This rather meager shift could represent a very important outcome since many authorities would argue that a child must accept himself before he accepts others. Overall, however, the results of this section were quite disappointing and certainly suggest that Objective II was not satisfied.

Student Objective Three -- First Year -- 1971-72.

A. Students will actively engage parent participation in reading reinforcement activities.

B. Parent participation record form.

Evaluation - First Year - 1971-72.

Beginning January 4, the form was sent home with students' assignments for parental signature indicating participation with child. Forms were kept in students file for record. As of March 31, 1972, students' files contained a total record of 160 instances of parental signatures indicating they had participated with the child in the assignment described on the form.

Student Objective Three -- Second Year -- 1972-73.

Students in Experimental Group I, who actively engage the family members in reading reinforcement activities will show greater gain in reading competency that those students in Experimental Group I who do not so engage.

A random sample of 20 participating families will be interviewed concerning the student/family reading activities. This will guarantee that the family participated in the student's program. A statistical test will be applied to the reading score of participating Experimental Group I students vs. the reading scores of non-participating Experimental Group I students to determine level of significant difference.

Evaluation - Second Year - 1972-73.

Table 31

Grade Equivalents Means on the SDRT Reading Comprehension
Subtest for Student Objective III

Groups	N	Pretest Mean	Posttest Mean	Adjusted Posttest Mean
Home Assignment	20	2.45	2.98	3.05
Control	18	2.58	3.41	3.33

Table 32

ANOCOVA Summary on the SDRT Reading Comprehension Grade Equivalent Scores for Student Objective III

Sources	ss	df	ms	F
Groups (adj.)	.72	1	.72	.94
Within groups (adj.)	26.59	35	.76	
Total (adj.)	27.31	36		

The evaluation of Objective III was carried out by employing ANOCOVA on the pre and posttest grade equivalent scores for the SDRT reading comprehension subtest. Table 32 indicates that the f-ratio was non-significant. Thus, it may be inferred that the adjusted posttest mean for the Home Assignment group did not differ significantly from the adjusted posttest mean for the control group. (See table 31). Moreover, a close inspection of Table 31 indicates that both groups made rather modest gains in mean grade equivalent scores from pre to posttest.

Note: Student Objective Three was terminated after the second year. The objective was terminated because of the difficulty encountered in establishing a statistical design that would yield meaningful results. In order to develop this objective, the scope of the program would have had to have been expanded. This was financially impossible.

Student Objective Four -- First Year -- 1971-72.

none

Student Objective Four -- Second Year -- 1972-73.

Students that attend the Center will increase their knowledge in reading-study skills.

Evaluation - Second Year - 1972-73.

The Work-Study Skills Test of the SRA Achievement Series was administered pre and post to determine if gain in knowledge of reading skills had been attained by the student participants. The data was treated statistically. The .05 level of significance was utilized.

Table 33

Tests of Significance on SRA Work-Study Skills Grade Equivalent Scores for Grades 4-6 for Student Objective IV

Grade	N	Pretest Mean	Posttest Mean	Difference Post-Pre	S.E.	t
4	18	3.39	3.69	.30	.20	1.50 NS
5	25	3.96	4.25	.29	.25	1.16 NS
6	21	4.31	4.47	.16	.20	.80 NS

The previous data indicates that Objective IV was not fulfilled, although modest observed mean gains were achieved in work-study skills at all grade levels.

Student Objective Four -- Third Year -- 1973-74.

Note: This objective was identified as Student Objective Three for the 1973-74 school year but it should have been identified as Student Objective Four. The problem was caused by the termination of Student Objective Three. Another objective was added and should have replaced the terminated objective. Unfortunately in developing the continuation report Objectives Four and Five were elevated one position and a new objective was introduced as Student Objective Five. The correct order is maintained in this report.

A. Students, grades 5, 6 and 7 that attend the Center, will increase their knowledge in reading-study skills.

B. Reading-study skills evaluation will be administered pre and post utilizing the SRA Work-Study Skills Test.

Evaluation - Third Year - 1973-74.

The evaluation of Objective Four was conducted by using the t-test on the gain scores associated with the SRA Work Study Skills Test for the Experimental I group. Table 34 displays the results of this analysis for each of the grades 5-7. At all grade levels, slight mean improvement were realized from pretest to posttest, but these gains proved nonsignificant when the critical statistical boundaries were applied.

Table 34

Tests of Significance on SRA Work Study Skills Grade Equivalent Scores for Grades 5-7 for Student Objective Four

Grade	N	Pretest Mean	Posttest Mean	Mean Gain	S.E.	t
5	12	3.76	4.05	.29	.17	1.71
6	19	3.76	4.49	.73	.38	1.92
7	9	3.52	4.21	.69	.36	1.92

The previous data would suggest that Objective Four was not fulfilled. However, modest observed mean gains were achieved in work-study skills at all grade levels. At grades 6 and 7 these gains exceeded the expected grade equivalent gain over the 6-month span between pre and posttest. It is again conceivable that both the short duration of this program and the cumulative frustration on the part of the student contributed to these rather small improvements.

Special Work Studies Student Objective - Third Year- 1973-74.

Thirty 7th and 8th grade students of the Millstadt Elementary School identified as deficient in Reading Vocabulary and Reading Work Study Skills will be provided with an individualized Geographical Educational Program that reinforces reading vocabulary and reading work study skills. Twenty-seven of the thirty students will attain a minimum gain of at least one grade equivalent.

Evaluation-Special Work Studies Objective-Third Year-1973-74.

The group performance part of this objective was evaluated by employing the t-test on the grade equivalent gain scores from the Work Study Test of the Iowa Test of Educational Development (ITED). Table 35 presents the summary data for the specially selected groups from both the 7th and 8th grades. The mean gains in grade equivalent scores for both the 7th and 8th grade groups were significant beyond the .001 level. In addition, both mean gains were substantially above the expected grade equivalent gain for the elapsed time span from pretest to posttest.

Table 35

Tests of Significance on ITED Test W
Grade Equivalent Scores for the Special
Work Studies Student Objective

Grade	N	Pretest Mean	Posttest Mean	Mean Gain	S.E.	T
7	30	5.22	6.14	.92	.20	4.47***
8	30	6.02	7.43	1.41	.17	8.41***

*** $p < .001$

The individual gains made by the 7th and 8th grade groups are categorized in Table 36. It is indeed striking that 12 out of the 30 students in grade 7, and 17 out of the 30 students in grade 8, garnered gains in excess of one grade equivalent.

Table 36

Numbers of Students Achieving Certain Grade Equivalent Gains on the ITED Test W for the Special Work Studies Student Objective

Grade	N	Loss in G.E.	No Gain in G.E.	.1 G.E. to 1 G.E.	More than 1 G.E.
7	30	8	0	10	12
8	30	11	1	11	17

The results on this Special Work Studies Objective are quite impressive. Not only were both mean gains significant at the .001 level, but the 8th grade gain was well above the targeted one grade equivalent level and the 7th grade gain approached this coveted level. No less impressive were the high frequencies of students that made individual gains in excess of one grade equivalent. Perhaps the only sour note was that the program did not attain the stringent criterion set initially of 27 out of 30 students with minimum gains of one grade equivalent. However, in retrospect this goal seems very unrealistic. In summary, one is compelled to say that the Individualized Geographical Education Program instituted in this objective was an unqualified success.

Student Objective Five -- First Year -- 1971-72.

none

Student Objective Five -- Second Year -- 1972-73.

Students, as a group, in grades one, two and three that are in the PLARC master teacher individual reading program, will after five months of participation, demonstrate a gain in the attainment of the specific reading behaviors: vocabulary and comprehension.

Participants will attain a mean gain significantly above one grade equivalent on a standardized instrument measuring the specific reading behaviors of vocabulary and comprehension. Each student will attain a minimum gain of at least one grade equivalent. A statistical hypothesis test will be conducted on the group mean gain equivalent scores. A tabulation will be made on the number of students attaining a minimum of at least one grade equivalent.

Evaluation - Second Year - 1972-73.

Table 37

Test of Significance on Grade Equivalent Scores on the
Gates-MacGinitie Test for Grades 1-3 for Student Objective V

Grade	Subtest	N	Pretest Mean	Posttest Mean	Difference Post-Pre	SE	t
1	Vocabulary Comprehension	10	1.10 1.38	1.91 1.82	.81 .44	.16 .17	5.06** 2.59*
2	Vocabulary Comprehension	24 *	1.73 1.60	2.50 2.25	.77 .65	.12 .12	6.42** 5.42*
3	Vocabulary Comprehension	17	2.12 2.08	2.73 2.19	.61 .11	.16 .08	3.81** 1.38*

* p .05

** p .01

No pretest score was available for one subject on comprehension, therefore means were based on 23 subjects for this subtest.

This objective was evaluated by conducting a t-test on the group mean grade equivalent gain scores for both the Vocabulary and Comprehension subtests for each grade 1-3. A tabulation was made of the number of students attaining a minimum gain of at least one grade equivalent.

Table 37 presents the results of the success in meeting this objective. The results are both disappointing and encouraging. In terms of group data, it can be seen that at each level (first, second and third grade) the students as a group made significant gains.

The first graders showed gains in vocabulary which were significant at the .01 level, and gains in comprehension which were significant at the .05 level.. This was found in spite of the fact that for first graders, more than half of the group performed at the lower limit of the test in grade equivalent scores on the pretest. This means that, in many cases, gains of several raw score points could have been effected with absolutely no corresponding gain in grade equivalent score. In terms of individual gains, only 3 of the 10 students gained as much as one year in grade equivalent scores on vocabulary, and 2 of the 10 students experienced this much gain in comprehension. However, in assessing the success of the program, it should be remembered that in starting with a group which has problems in reading, it is not unusual for such a group to fail to register any gains at all during a brief interval such as the 5 month duration of the experimental program

The second graders performed much better as a group, in that differences in gain scores in both vocabulary and comprehension were found to be significant at the .01 level. Nine of the 24 students attained a gain of one year or more in grade equivalent scores in vocabulary, and 7 of 23 improved one year or more in grade equivalent score in the area of comprehension. If the criterion used were equal to the actual time involved (a grade equivalent score of .5) then in vocabulary, 17 of the 24 were successful in keeping abreast of the progress of average students, and 13 of 23 reached that level in comprehension.

The third graders showed improvements similar to the other two groups in the area of vocabulary, where a difference significant at the .01 level was found. However, the pre and post test means in comprehension were not significantly different from one another. In addition, only 5 of 17 students on the vocabulary subtest and 0 of 17 on the comprehension subtest made gains of one or more grade equivalents.

In terms of the overall effectiveness of the program in realizing Objective V, qualified success was achieved in grades 1 and 2, with greater success at the second grade, where the mean gain in comprehension was greater than the length of time lapsed. This is especially important in light of the study having begun with students who were behind their age-placement, thus indicating a history of less than average progress.

Finally, it should be indicated why the word "qualified" was used to describe the success under this objective. In the strict sense of the statement of this rather "lofty" objective, the grade groups did not attain mean gains significantly above one grade equivalent, nor did a substantial number of students as individuals advance one grade equivalent or more. However, in view of the time limits imposed on the treatment, the sheer number of significant gains under this objective would attest to its success, especially when the target population is one already identified as experiencing difficulty in reading achievement.

Student Objective Five -- Third Year -- 1973-74.

Students, as a group, in grades kindergarten, one, two, three, four that are in the PLARC Master Teacher Individual Reading Program will after five months of participation attain a mean gain significantly above one grade equivalent on a standardized instrument measuring the specific reading behaviors of Vocabulary and Comprehension. Each student will attain a minimum gain of at least one grade equivalent.

Evaluation - Third Year - 1973-74.

The group performance part of Objective Five was evaluated by conducting a t-test on the group mean grade equivalent gain scores for both the vocabulary and comprehension subtests of the Gates-MacGinitie Test. for each grade 2-4. Table 38 reports the results of the statistical tests. Since only posttest scores were available for the PLARC students in grade 1, no results are reported for this grade in the table.

Table 38

Tests of Significance on Grade Equivalent Scores on the Gates-MacGinitie Test for Grades 2-4 for Student Obj. V.

Grade	Subtest	N	Pretest Mean	Posttest Mean	Mean Gain	S.E.	t
2	Vocabulary Comprehension	9	1.93	2.57	.64	.23	2.78*
			1.81	2.06	.25	.18	1.39
3	Vocabulary Comprehension	13	2.56	3.38	.82	.26	3.15**
			2.21	2.89	.68	.26	2.69*
4	Vocabulary Comprehension	3	2.67	2.79	.03	.30	.10
			2.23	2.23	.00	.29	.00

** $p < .01$

* $p < .05$

Examination of Table 38 shows that vocabulary gains for grades 2 and 3 were statistically significant at the .05 and .01 levels respectively. Comprehension gains were significant for only grade 3 and attained only the .05 level in this instance. Since many students in grade 4 had only posttest data available, the statistical test based on a sample size of 3 for this grade has very little meaning in terms of success or failure of the objective.

Additional light is shed on the evaluation of Objective Five by studying the individual gains for the students in grades 2 and 3. The breakdown of this data is given in Table 39.

Table 39

Numbers of PLARC Students in Grades 2-4 Achieving
Certain Grade Equivalent Gains on the
Gates MacGinitie Test for Student Objective Five

Grade	Subtest	N	Loss in G.E.	No Gain in G.E.	.1 G.E. to 1 G.E.	More than 1 G.E.
2	Vocabulary	9	1	0	5	3
	Comprehension		3	1	4	1
3	Vocabulary	13	2	1	4	6
	Comprehension		3	0	8	2
4	Vocabulary	3	2	0	1	0
	Comprehension		1	1	1	0

Probably the most striking feature of this table is that 6 out of the 13 students in grade 3 made vocabulary gains of more than one grade equivalent score. Also 8 out of the same 13 students made comprehension gains of from .1 to 1 grade equivalent score. At the second grade level it can be seen that many of the gains in both vocabulary and comprehension piled up in the .1 to 1 grade equivalent category.

In terms of overall effectiveness of the master teacher program in realizing Objective Five, great success was achieved at grade 3. Although both the mean gains in vocabulary and comprehension fell short of the desired goal of one grade equivalent or more, both were statistically significant and were greater than the elapsed length of time for this year's program. Moreover, on an individual basis, almost one-half of these students tallied gains in excess of one grade equivalent score on the vocabulary subtest. At grade 2, the success of the program was somewhat limited. The vocabulary gain was significant and also above the elapsed program time, but the comprehension gain did not achieve such prominence. Of course, far too few observations were available at grade 4 to make any accurate statements. All things considered, these results must be interpreted as satisfying Objective Five in spirit if not in letter.

Student Objective Six -- Third Year -- 1973-74.

A. Identify learners with perceptual and auditory deficiencies, age five to twelve, grades k-4, and prescribe and initiate a perceptual-auditory education program for each deficient learner. After one year of treatment each learner will demonstrate significant gain in auditory and perceptual skills that are directly related to the basic tasks of Reading.

B. The auditory analysis test and the visual analysis test will be administered to all k-4 students that have previously been identified by their classroom teachers and/or diagnostic reading tests as being deficient in reading readiness or reading skills. These tests will be administered at the students attendance center during the first two weeks of September. Students that demonstrate an auditory or perceptual dysfunction will begin attending the Center the second week of October and their attendance will terminate the last week of April. The instructional time shall consist of a minimum of $\frac{1}{2}$ day per week. The student will be guaranteed a minimum of two hours of correctional instruction in the area of his diagnosed dysfunction. The perceptual/auditory curriculum materials to be utilized will be those that have been developed at the R & D Center of the University of Pittsburgh.

C. The AAT, VAT and The Gates MacGinitie Tests will be administered on the pre-post basis to the participants. The raw gain scores of the AAT and VAT and grade equivalent gain scores on the Gates-MacGinitie will be computed. Using .01 as the level of significance, the mean gain scores of these instruments will be tested for statistical significance.

In addition, each individual's gain scores on the Gates-MacGinitie will be examined and compared to a grade equivalent gain criterion of .5.

Evaluation - Third Year - 1973-74.

The data available for analysis under Objective Five was much less than the original plan prescribed. Two groups of kindergarten students who were identified as having auditory or perceptual dysfunctions constituted the experimental and control groups. The experimental group received six months of instruction using the perceptual/auditory curriculum materials developed at the University of Pittsburgh. Posttest scores on the Gates-MacGinitie Readiness Test were obtained for both groups and statistically analyzed via the t-test. Table 40 gives the results of this test.

Table 40

Test of Significance on Gates-MacGinitie Readiness Scores
for Perceptual-Auditory Program in Student Objective Six

Groups	N	Means	Difference	SE	t
Experimental	12	76.08	10.56	4.98	2.12*
Control	21	65.52			

* $p < .05$

The observed difference in posttest means was 10.56 in favor of the Experimental Group. This difference produced a t-value of 2.12 which was significant at the .05 level.

In terms of the original statement of Objective Six, the results reported in this section can only be interpreted as partially fulfilling this objective. Since only kindergarten and posttest data were available, the significant findings certainly diminish the internal and external validity of the experiment.

SECTION II - A. OBJECTIVES THAT HAVE BEEN ATTAINED.

1. Teacher Objective One.

Teachers in grades (1-3) (4-6) (7-8) who participate in in-service training sessions at the Center will demonstrate competency in diagnosing reading skills to 90% criterion.

2. Technique for Evaluation.

The first year of the program the mastery technique was used to assess objective attainment.

A new project director was employed for the second and third years of the program, and the project director and program evaluators determined that the utilization of the mastery technique provided a poor statistical evaluation of objective attainment. Therefore the technique for evaluation for the second and third years of the program was changed to read as follows:

pre-post test utilizing a statistical t-test will be used to assess success.

The objective for the second and third year was changed to read as follows:

Teachers in grades (4-6) (7-8) who participate in in-service training sessions at the Center will show significant gains at the 5% level in the ability to diagnose reading behavior.

3. Summary Evaluation.

Year One: Nine of twelve teachers from grades one, two and three achieved the desired 90% competency criterion.

Year Two and Three: The teachers from grades four through eight attained gains significant at the .01 level.

4. Factors that Facilitated Accomplishment.

a) The inservice training program was extensive and consisted of summer workshops, nine Saturday workshops during each school year, plus a minimum of three half days of released time during the school year. The inservice programs were reading orientated.

b) The teachers employed by the project functioned as master teachers and worked directly with the classroom teachers. This phase of the program probably was more responsible than other program aspects for the successful attainment of this objective.

c) A realistic prepost video test was developed and thereby a simulated real teacher diagnostic technique was evaluated.

1. Teacher Objective Three.

Teachers in grades (1-3) (4-6) (7-8) will demonstrate increased ability to prescribe appropriate materials for the development of specific reading behaviors.

2. Technique for Evaluation.

The first project year a pre/post test comparison was utilized but no statistical technique was employed. This resulted in providing a non-relevant evaluation. An evaluation technique was made by the new project director and the project evaluators and therefore the evaluation technique employed for the final two project years was a pre/post test employing a statistical t-test to assess success.

3. Summary Evaluation.

Year One: Teachers grades one, two and three improved by an average score of 4.4 in the ability to list various remediation techniques.

Year Two: Teachers in grades four, five and six demonstrated a gain in the ability to select appropriate remediation techniques significant at the .05 level.

Year Three: Teachers in grades seven and eight demonstrated a gain in the ability to select appropriate remediation technique but the gain did not reach statistical significance.

4. Factors that Facilitated Accomplishment.

a) The extensive inservice training program. See Teacher Objective One, Page 1.

b) The realistic nature of the test in an applied setting was facilitative, but might have worked against this particular objective in that the identification of appropriate remediation techniques was contingent upon correct diagnosis of a reading problem. This is ideal insofar as measuring a useful improvement, but greater success might have been seen if a more artificial test had been used in which remediation techniques had been matched with pre-identified reading problems in a rote-learning fashion.

1. Teacher Objective Four.

Teachers in grades (1-3) (4-6) (7-8) will increase competency in developing appropriate evaluation (questioning) devices for reading comprehension.

2. Technique for Evaluation.

For the three project years the teachers were expected to demonstrate the ability to increase their utilization of the evaluative and the interpretive type of questions and simultaneously decrease their utilization of the literal type of questions.

First year a pre-post test comparison was made but no statistical test was conducted.

A correction in the statistical technique was made for the second and third project years.

For the second and third years a pre-post test utilizing a statistical t-test was used to assess success.

3. Summary Evaluation.

Year One: Sizable gains were observed in interpretive and evaluative type questions utilized by teachers in grades one, two and three.

Year Two: Teachers in grades four, five and six demonstrated gain in the utilization of interpretive and evaluative type questions significant at the .01 level.

Year Three: Teachers in grades seven and eight demonstrated sizable gain in the utilization of interpretive and evaluative type questions but the gain did not reach statistical significance.

4. Factors that Facilitated Accomplishment.

A. The extensive inservice training program. See Teacher Objective One on page 1.

B. The outstanding consultant service provided by Mrs. Ruth Richardson, Ph.D. Ed., S.I.U., Edwardsville, Illinois and Mrs. Genevieve Langston, Ph.D., Ed., Eureka College, Eureka, Ill.

C. Master teachers Miss Karen Hutcheson and Mrs. Betty Reed working diligently with project teachers on a one to one basis.

1. Teacher Objective Five.

Teachers in grades (1-3) (4-6) (7-8) will increase content knowledge about the language arts process.

2. Techniques for Evaluation.

The statistical design for the first project year was nebulous. The relationship between procedures for objective accomplishment and objective evaluation was very poor.

The first year evaluation was redundant and therefore the second and third year the objective was utilized as a summary objective, and the technique employed was to summarize the accomplishment of objectives one through four.

3. Summary Evaluation.

Year One: Teachers in grades one, two and three demonstrated gains in the acquisition of content knowledge in language arts significant at the .01 level.

Year Two: Teachers in grades four, five and six demonstrated significant statistical gain for objectives one, three and four. Therefore, based on a review of individual teacher objectives, this objective was successfully accomplished.

Year Three: Teachers in grades seven and eight demonstrated gains for objective one, three and four. Therefore, based on a review of individual teacher objectives, this objective was marginally successful because statistical significance was not attained for each objective.

1. Teacher Objective Six -- Third Year -- 1973-74.

A Sequential Reading Curriculum written in objective form, that provides the learner with the opportunity to utilize alternate styles of learning how to read and provides the teacher with the opportunity to match varied types of educational materials and equipment to the learners individual styles, will be developed for utilization of the seven cooperating school districts. The curriculum will be completed by April 7, 1974.

2. Technique for Evaluation.

Survey of teachers concerning potential utilization.

3. Summary Evaluation.

Evaluation-Third Year-1973-74.

Sequential Reading Curriculum written in objective form was developed by April 7, 1974 and reproduced by April 30, 1974 and distributed to all teacher participants May 24, 1974. A survey of the teachers indicates that 60% intend to utilize the curriculum as an aid for planning their instructional reading program.

4. Factors that Facilitated Accomplishment.

The ability of the Paderborn reading specialists to organize the reading curriculum in objective form contributed to objective accomplishment.

1. Student Objective One.

A. Students, grades (1-3) (4-7), will increase their competency in reading in the following patterns: using a 90% confidence level it is possible to say that any student moving 1.28 standard error units has gained in a non-random manner. That is, over the long run, a gain of 1.28 or more SEM units would occur by chance 10% (or less) of the time.

B. For project years two and three the gain scores of Experimental Groups I and II will be compared to the gain scores of the Control Group.

2. Technique for Evaluation.

Project Year One: Two experimental groups were utilized. One group was comprised of the students attending the Center for reading assistance and one group was receiving help in their schools.

The evaluation methodology consisted of utilizing the confidence level approach of assessing individual gains.

Project Year Two and Three: Two experimental groups (one at the Center and one in the schools) were compared with a control group of students attending a school that did not receive program treatment.

The evaluation methodology consisted of an analysis of covariance to determine statistical significance and of assessing individual gain by utilizing the confidence level approach.

3. Summary Evaluation.

Year One: Utilizing the confidence level it can be stated that success was attained, in that a range of 60% to 90% of the students achieved significant gains in either vocabulary and/or comprehension.

Year Two: Utilizing an analysis of covariance a statistically significant difference in posttest adjusted means was found (grade five at the .01 level and grade six at the .05 level). The differences were in favor of the groups being helped in the regular classroom through the use of a master teacher.

Confidence levels indicated significant gain that ranged from 65% to 100%.

Year Three: No significant differences were found to favor the experimental groups.

Confidence levels indicated significant gain that ranged from 45% to 72%.

The objective was met successfully, particularly in the child's first year of program participation and at the lower grade levels. The second year of program operation produced the greatest statistical gain. This is the only program year in which the master teacher was scheduled into the regular teachers classroom for a minimum of one half hour per week. During the first year of the program the master teacher concept was not utilized and during the third year of the program, a rigid schedule was not imposed because the classroom teacher was allowed the option of requesting aid or rejecting aid completely. The statistical results of this program seem to indicate that the utilization of a master teacher in the regular classroom to aid the classroom teacher is an efficient method of improving the reading skills of children, provided a definite schedule is established for master teacher-classroom teacher cooperation.

4. Factors that Facilitated Accomplishment.

The inservice training program provided teachers with more expertise in the teaching of reading.

The master teacher concept provided a specialist at the disposal of the classroom teacher.

A learning center provided a model enabling the schools and teachers to begin to individualize instruction.

The earlier a child was identified as a disabled reader and provided a reading program, the more successful the attainment of this objective.

1. Student Objective Four.

Students that attend the Center will increase their knowledge in reading study skills. (grades 4-6) and (5-7).

2. Technique for Evaluation.

Year One: Objective wasn't included.

Year Two: Pre-post test comparison using a t-test on gains in the S.R.A. Work Study Skills.

Year Three: A-Pre-post test comparison using a t-test on gains in the S.R.A. Work Study Skills.

B. A pre-post test comparison utilizing t-tests on gains on the Iowa Test of Educational Development Test W-work studies.

Note: A concentrated educational effort was conducted for one school district. Special work studies objective was established for this group of 7th and 8th grade students.

3. Summary Evaluation.

A. Pre-post test scores were subjected to t-test of gains. For both years gains were observed but they did not reach statistical significance.

B. A pre-post test comparison utilizing a t-test revealed gains significant at the .001 level.

4. Factors that Facilitated Accomplishment.

The success of the objective was minimal because the basic objective assumed that reading study skills would improve along with general improvement in reading. Although observed gains were obtained, they were not statistically significant. However,

the specific objective in year three for 7th and 8th grade students, concentrated upon improving work study skills. These students did demonstrate significant gains at the .001. Therefore, concentration upon the development of work study skills by the students facilitated objective accomplishment.

1. Student Objective Five -- Second and Third Years--1972-74.

Students, as a group, in grades one, two, three, four that are in the PLARC Master Teacher Individual Reading Program will after five months of participation attain a mean gain significantly above one grade equivalent on a standardized instrument measuring the specific reading behaviors of Vocabulary and Comprehension. Each student will attain a minimum gain of at least one grade equivalent.

2. Technique for Evaluation.

A t-test of mean gains by grade level was utilized.

3. Summary Evaluation.

1972-73: Students in grades 1, 2 and 3 demonstrated significant improvement in both vocabulary and comprehension at either the .01 or the .05 level.

1973-74: Students in grades 2 and 3 demonstrated significant improvement in vocabulary at the .01 or the .05 level. Students in grades 3 demonstrated significant improvement in comprehension at the .05 level.

The fourth grade sample was exceedingly small and no significant improvement was demonstrated.

4. Factors that Facilitated Accomplishment.

The opportunity to diagnose student reading deficiencies at an early age, and thereby provide an individualized reading program based upon individuals needs, was the major factor that facilitated objective accomplishment.

The cooperation of the classroom teacher and the master teacher (Reading Specialist) in diagnosing and planning the student's individualized reading program also contributed to objective attainment.

1. Student Objective Six -- Third Year -- 1973-74.

Identify learners with perceptual and auditory deficiencies, age five to twelve, grades k-4, and prescribe and initiate a perceptual-auditory education program for each deficient learner. After one year of treatment each learner will demonstrate significant gain in auditory and perceptual skills that are directly related to the basic tasks of reading.

2. Technique for Evaluation.

It was impossible to incorporate students from grades 1, 2, 3 and 4; therefore, the data available for analysis under Objective Six was much less than the original plan prescribed. Two groups of kindergarten students who were identified as having auditory or perceptual dysfunctions constituted the experimental and control groups. The experimental group received six months of instruction using the perceptual/auditory curriculum materials developed at the University of Pittsburgh. Posttest scores on the Gates-MacGinitie Readiness Test were obtained for both groups and statistically analyzed via the t-test.

3. Summary Evaluation.

In terms of the original statement of Objective Six, the results reported in this section can only be interpreted as partially fulfilling this objective. Since only kindergarten and post-test data were available, the significant finds certainly

diminish the internal and external validity of the experiment. The objective was attained for the kindertarten participants as indicated by the following table:

Test of Significance on Gates-MacGinitie Readiness
Scores for Perceptual-Auditory Program in Student Obj. VI

Groups	N	Means	Difference	SE	t
Experimental	12	76.08	10.56	4.98	2.12*
Control	21	65.52			

* p .05

This observed difference in posttest means was 10.56 in favor of the experimental group. This difference produced a t-value of 2.12 which was significant at the .05 level.

4. Factors that Facilitated Accomplishment.

A master teacher utilizing the Rosner Visual and Auditory Perceptual Skills Program as a kindergarten instructional program.

1. Program Objective.

The goal of the original program was the development of a Language Arts Reading Center. This was not written in performance terms but an attempt is made to evaluate accomplishment.

2. Technique for Evaluation.

Subjective evaluation by the project director based on baseline data. Therefore the evaluation is based on three components which are:

First, was the Center established?

Second, did the Center aid teachers and students?

Third, did the Center have a direct effect upon the instructional program of teachers participating in the project?

3. Summary Evaluation.

1. The center was established and did serve as a reading/ language arts center. It was utilized as an inservice training center and as an instructional center for students identified as deficient readers. Teacher participation as demonstrated by dissemination requests and attendance at the center for workshops and classroom demonstration indicates successful goal attainment.

2. The statistical gains demonstrated by the evaluation of the teacher and student objectives indicates that the center was a contributing factor.

3. The development of learning centers in three of the six participating schools can be attributed to the Language Arts and Reading Center.

4. Factors that Facilitated Accomplishment.

1. The Title III, E.S.E.A. program.
2. The consultants and Paderborn staff.
3. The leadership of the Smithton School District specifically Mr. Henry J. Mahat, Superintendent and Smithton School Board.
4. The acceptance and need of teachers in Southern Illinois.

SECTION II - B. OBJECTIVES NOT ACCOMPLISHED.

1. Teacher Objective Two.

Teachers in grades one, two and three will demonstrate competency to group students homogeneously for instruction in relation to skill deficiencies to 90% performance criterion.

2. Technique for Evaluation.

The mastery technique was utilized for statistical evaluation. The teachers were required to group students for instruction based upon the students demonstrated skill deficiency as assessed by the Stanford Diagnostic Reading Test. The teacher assessment was expected to correspond with the grouping of four program reading experts.

3. Summary Evaluation.

Eight of seventeen teachers attained the 90% performance criterion during the first project year. For the second project year four of twenty-four teachers agreed with the experts. The teachers did attain competency in grouping students according to their needs as determined by the Stanford Diagnostic Reading Test.

4. Reasons for Failing to Accomplish the Objective.

The objective was poorly written. The teachers during the first project year were actually grouping children according to a testing instrument. The test determined the grouping

procedures; therefore, if the teachers read and followed the test manual they would attain 100% competency.

A correction in the procedures was attempted for the second year and the teachers were expected to group according to criteria established by utilizing the results of grouping performed by reading experts. The evaluation procedure established that the classification by the reading specialist might be in error or at least no more correct than the groupings done by the classroom teachers.

This objective was terminated after two years because the objective didn't provide valid statistical results.

The basic goal of the objective was ambitious but the development of a statistical design that would return acceptable statistical data could not be accomplished for the third program year. This objective would require a complete program. In fact the objective mirrors what the university is attempting to accomplish in their diagnostic reading courses for teachers.

1. Student Objective Two.

Students in Grades (1-3) (4-6) (5-7) in schools affected by Title III, E.S.E.A. Paderborn Project will indicate a greater satisfaction

- 1) with school in general
- 2) with reading as a subject
- 3) with self-achievement in reading than those students in the school not affected by Title III, E.S.E.A.

2. Technique for Evaluation.

Year One: A locally devised instrument was utilized. An analysis of variance of posttest scores was conducted.

Year Two: A locally generated attitude survey was employed. A statistical t-test on posttest scores was conducted.

Year Three: A standardized instrument was utilized. An analysis of covariance was employed on posttest scores.

3. Summary Evaluation.

Year One: Posttest scores yielded no significant difference.

Year Two: A statistical t-test on posttest scores yielded no significant difference.

Year Three: An analysis of covariance was employed and the adjusted posttest means revealed no significant differences.

4. Reasons for Failing to Accomplish the Objective.

The whole area of attitude measurement is difficult especially for the age groups involved in the project.

Attitudes are long-standing in nature, and there is some question as to the ability of treatment to change them in a relatively short treatment period.

1. Student Objective Three.

Students in Experimental Group I, who actively engage family members in reading reinforcement activities will show greater gain in reading competency than those students in Experimental Group I who do not so engage.

2. Technique for Evaluation.

Year One: Subjective evaluation based on anecdotal data.

Year Two: An analysis of covariance was utilized with the adjusted posttest means on the Stanford Diagnostic Reading Comprehension Subtest scores to compare groups.

3. Summary Evaluation.

Year One: Poor statistical design; therefore data could not be evaluated.

Year Two: No significant differences were obtained.

4. Reasons for Failing to Accomplish the Objective.

This objective was terminated at the end of the second program year because of the difficulty in establishing an evaluation procedure that would yield beneficial data. This objective was global and therefore the scope of the program would have had to have been expanded and this was financially impossible. The meager statistical results indicates that aid at home does not aid the student's achievement in school. In order to verify this statement an extensive study must be conducted.